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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 09/876,155 | 06/08/2001 | Meoung Whan Cho | 041501-5442 | 6714 |
| 9629 | 7590 | 11/04/2003 | EXAMINER | |
| MORGAN LEWIS & BOCKIUS LLP | | | CRANE, SARA W | |
| 1111 PENNSYLVANIA AVENUE NW | | | ART UNIT | |
| WASHINGTON, DC 20004 | | | PAPER NUMBER | |
| | | | 2811 | |

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,155

Applicant(s)

CHO ET AL.

Examiner

Sara W. Crane

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi et al., Fan et al., Chen et al., and McIntosh et al.

See reasons of record in the Office action of 10 April 2003.

With respect to the limitations added by amendment, Kawasumi et al. figure 3 shows GaAs substrate 1, with first light emission part of III-V material (21R, 21G), and second light emission part of II-VI material (21B) (Abstract, next to last line). Paragraph [0017] teaches that the lowest device in the stack produces red light, and upper devices can produce green or blue. It would have been obvious to choose specific wavelengths for light emission within the red wavelengths for the lowest device, and specific wavelengths within the green or blue wavelengths for the upper devices, in order to tailor the specific color of red and blue/green light emitted. McIntosh figure 5 shows a chart which gives the wavelength ranges corresponding to different colors, and shows that the relationship between wavelength and color is well known.

Claims 7-8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-6 and 11-12 above, and further in view of Kotoki et al. and Scrifes et al.

See reasons of record.

Conclusion

Applicant's arguments presented with respect to the pending claims have been considered, but are not convincing. Applicant notes that the specific wavelength ranges set forth in for example claim 1 are not specifically set forth in the prior art. As noted above, examiner believes that the wavelength ranges recited give rise to colors of emitted light which are taught in the prior art, and would therefore be encompassed, or obvious in view of, the prior art teachings. For example, Kawasumi et al. specifically teaches that the lowest device in his stack emits red light, and McIntosh figure 5 shows that a wavelength range of 635-780 nm covers virtually all of the known wavelength range for red light. Also, nothing in claim 1, for example, says that the "first light emission part" emits only one color of light, so that the claim can be read to describe a stack such as taught by Kawasumi figure 3, which emits three wavelengths. Alternatively, it would have been obvious to omit one of the three stacked Kawasumi emitters, if the function of that emitter were not desired. The other references show light emitting stacks having only two light emitters, where only two colors of emission are desired.

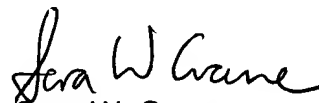
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (703) 308-4894.

The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (703) 308-0956.


Sara W. Crane
Primary Examiner
Art Unit 2811